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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,799	12/13/2004	David K.Y. Low	57765US004	8965
32692 7590 06/25/2008 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427				
EXAMINER DANIELS, MATTHEW J				
ART UNIT		PAPER NUMBER		
1791				
NOTIFICATION DATE		DELIVERY MODE		
06/25/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

**Application No.**

10/517,799

**Applicant(s)**

LOW ET AL.

**Examiner**

MATTHEW J. DANIELS

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 1-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 1/21/05 12/13/04

**DETAILED ACTION**

***Lack of Unity***

1. Restriction is required under 35 U.S.C. 121 and 372. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-10, drawn to methods.

Group II, claim(s) 11-14, drawn to articles.

2. The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: (1) The two inventions lack the same or corresponding special technical features as evidenced by the lack of structural or method limitations in Claims 11-14, or (2) forming a passageway by laser drilling would have been obvious over Alband (WO 99/55600) in view of Tessier (USPN 5073694). Alband teaches the drilling of a hole in the side of a valve stem, but is silent to the use of a laser. However, Tessier teaches that in forming holes in tubular articles, it is conventional to place a fluid within the cavity to eliminate dross adhered to the cut surface (Abstract). Therefore, in view of these references teaching the special technical feature, the special technique feature does not make a contribution over the prior art and there is a lack of unity between Groups I and II.

3. During a telephone conversation with Mr. Ted Ringsred (35,658) on 29 April 2008, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-10. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 11-14 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Information Disclosure Statement***

4. The information disclosure statement filed 13 December 2004 failed to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. The foreign patent documents are not present in the record. These documents have been retrieved and considered, and copies are included with this action.

***International Preliminary Examination Report***

5. The Tessier patent (USPN 5,073,694) has been selected instead of documents D2, D3, and D4 as set forth in the International Preliminary Examination Report because Tessier provides motivation or rationale for combination with Alband by expressly teaching a laser drilling process which eliminates residue or dross (Abstract), interpreted to be a burr, from the inner circumference of the workpiece.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Alband (WO 99/55600) in view of Tessier (USPN 5073694) and Thompson (USPN 5083852). **As to Claims 1 and 2**, Alband teaches a valve stem component (Abstract) having an internal cavity (Figs. 2 and 3) and a method comprising the step of drilling a hole through the component into the internal cavity (page 14, lines 23-24).

Alband is silent to the filling and sealing of a fluid within the cavity and laser drilling the hole.

However, Tessier teaches that it is known to provide a fluid within a cavity in a component and laser drilling a hole through the component into the internal cavity (Abstract). Alband teaches a tubular article closed on one end produced by deep drawing (page 3, lines 15-32), and one would have found it obvious to modify the Tessier technique for use with the Alband process by sealing the remaining end of the article after filling with liquid since it would not be possible to provide a flow through the stem. Thompson establishes a level of knowledge in the art and provides evidence that in filling a cavity with a liquid, it is known to provide a sealed cavity filled with liquid instead of a flowing liquid. Thus, Tessier suggests to the ordinary artisan performing a laser drilling process that liquid in a cavity may be used to eliminate residue or dross adherence, and Thompson provides evidence that the ordinary artisan would have recognized liquid sealed in a cavity as an alternative to a flowing liquid.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Tessier into that of Alband because Tessier suggests eliminating burrs on the inside of the valve stem (page 12, lines 1-4, page 13, lines 23-27) which

suggests the method of Tessier because Tessier's process eliminates adherence of dross and residue on the inside of the valve stem. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Thompson into that of Alband because use of a sealed fluid which blocks the beam would have avoided cutting or ablating the back surface of the tube.

**As to Claims 3, 4, and 9**, Alband teaches a method of manufacturing a valve stem (Abstract) comprising:

(a) providing a valve stem work-piece having a passageway with an outlet by thermoplastic injection molding (page 3, lines 17-18) or deep drawing a metal step (page 3, lines 15-16);

(d) drilling a side port through the workpiece into the passageway (page 14, lines 23-24).

Alband is silent to step (b), step (c), the laser drilling of step (d), and step (e).

However, these aspects of the invention would have been obvious over Tessier and Thompson for the following reasons:

However, Tessier teaches that it is known to provide a fluid within a cavity in a component having a passageway and an outlet and laser drilling a hole through the component into the internal cavity (Abstract). Thompson establishes a level of knowledge in the art and provides evidence that in filling a cavity with a liquid, it is known to provide a sealed cavity filled with liquid instead of a flowing liquid. Thompson additionally suggests sealing the liquid in the cavity using a taper ground joint, which is a common configuration on bottles with stoppers. In order that the Alband article be used for its intended purpose, it would have been obvious to drain the liquid. Thus, Tessier suggests to the ordinary artisan performing a laser

drilling process that liquid in a cavity may be used to eliminate residue or dross adherence, and Thompson provides evidence that the ordinary artisan would have recognized liquid sealed in a cavity as an alternative to a flowing liquid.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Tessier into that of Alband because Tessier suggests eliminating burrs on the inside of the valve stem (page 12, lines 1-4, page 13, lines 23-27) which suggests the method of Tessier because Tessier's process eliminates adherence of dross and residue on the inside of the valve stem. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Thompson into that of Alband because use of a sealed fluid which blocks the beam would have avoided cutting or ablating the back surface of the tube.

**As to Claims 5 and 8**, it is submitted that Alband provides articles with contours (Figs. 2 and 3), which would obviously be produced by thermoplastic injection molding as described above, and forming a passageway by drilling (page 13, lines 23-24). In combination with Tessier, it would have been obvious to form the passageway and outlet by laser drilling as set forth above with respect to Claim 1. **As to Claim 6**, as an alternative to thermoplastic injection molding, Alband teaches cold forging (page 18, lines 13-15). **As to Claim 7**, Alband suggests cold forging (page 18, lines 13-15) a metal (page 5, line 7) valve stem (page 5, line 13) and forming the passageway and outlet by drilling (page 13, lines 23-24). **As to Claim 10**, Alband suggests inserting a plug or sealing device in the interior of the passageway (Fig. 2, item 46, page 12, lines 12-21) between the closed end and the side port and curling the outlet end inwardly

Art Unit: 1791

(Fig. 2, item 42, page 10, lines 4-12). Any order of performing the disclosed process steps in combination with the formation of the hole of Tessier would have been obvious.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew J. Daniels/

Primary Examiner, Art Unit 1791

6/21/08